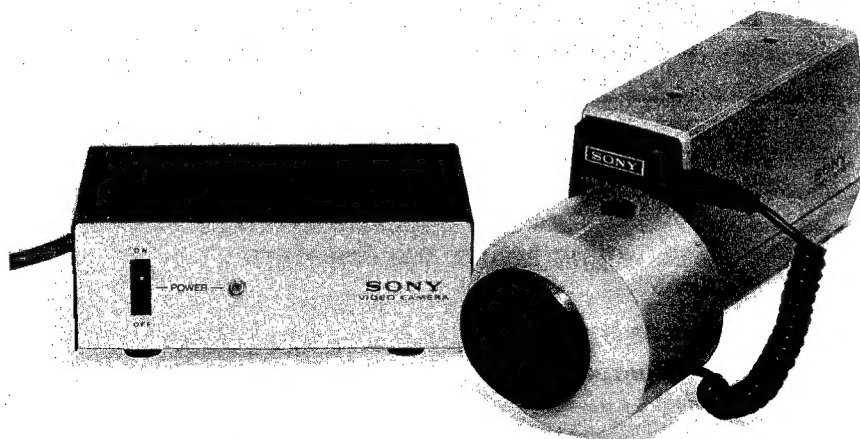


VIDEO CAMERA

AVC-1450

559
561



SPECIFICATIONS

Pickup tube: 2/3-inch, electrostatic focus, electromagnetic deflection
TYPE E5195, S4102

Scanning system: 525 lines/frame, 30 frames/sec

Sync: Internal 2 : 1 interlace sync generator

Resolution: More than 450 lines at center
More than 350 lines at corners

Scanning frequency: H 15,734 Hz; V 59.94 Hz

Minimum illumination: 1 Lux

Automatic sensitivity control range: 10 ~ 100,000 Lux
(with E-E AUTO IRIS LENS)

Video output: 1.0 V(p-p) sync negative
75 ohms unbalanced

Signal-to-noise ratio: Better than 44 dB

Power requirements: AC 120 V 60 Hz

Power consumption: 13W

Operating temperature: 23°F - 113°F
(-5°C - 45°C)

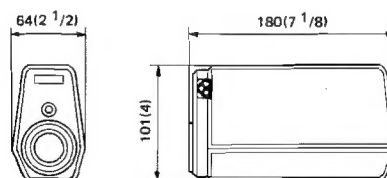
Lens mount: Standard "C" mount

Weight: Camera head
0.95 kg (2 lb 2 oz)
Power unit
1.5 kg (3 lb 5 oz)

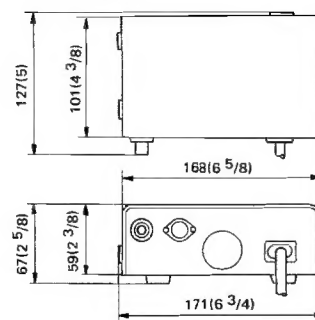
Accessories supplied: CCF cable 5 m (16.4 ft)
75 ohm coaxial cable 1.5 m (4.9 ft)

Optional: E-E automatic iris lens
(JF1614EA-II)
CCF cable (CCF-5, 10, 25, 50)

Dimensions: Camera head



Power unit



Units: mm (inches)

SONY®

SERVICE MANUAL

561 559

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SECTION 1 ALIGNMENT

1. PRECAUTIONS

The following precautions should be observed to prevent damage to the pickup tube. Take good care. The high sensitivity tube employed in this camera is far expensive than ordinary type tube.

1. Do not subject the pickup tube to excessive jarring or mechanical shock.
2. Before applying the power to a defective camera of unknown condition, cut off the beam by turning the semifixed resistor (R2) BEAM Control, fully counterclockwise, looking from the printed pattern side of the PA-1 circuit board.

2. DISASSEMBLY

2-1. Camera Head Unit Disassembly

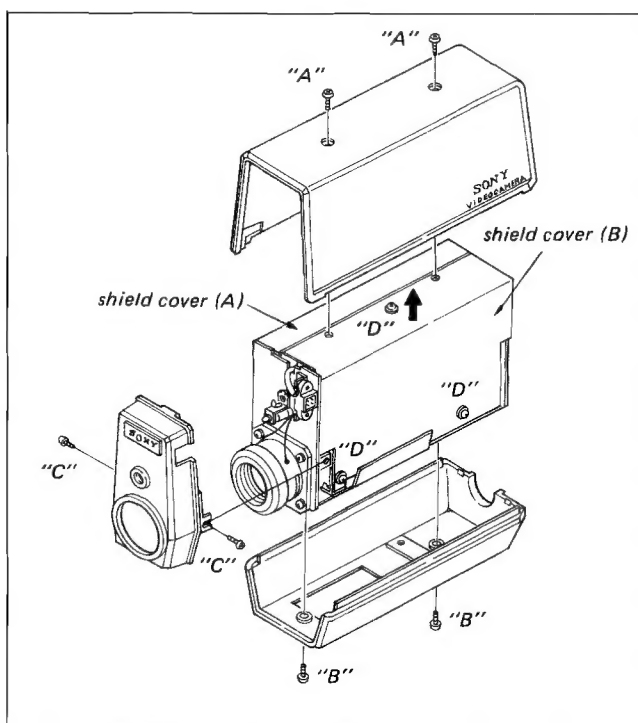


Fig. 2-1. Camera head unit disassembly

1. Remove the lens from the camera.
2. Remove two screws "A" shown in Fig. 2-1 securing the upper cover and remove the cover.
3. Remove two screws "B" holding the lower cover and remove the lower cover.
4. Remove two screws "C" securing the front cover on its both sides and remove it.
5. Remove five screws "D" holding the shield covers. Remove shield cover (B) first in the direction shown by the arrow. Then remove shield cover (A) in the same direction.
6. The PA-1 and the DR-1 Boards can be opened 90° for easy access to the parts/components.

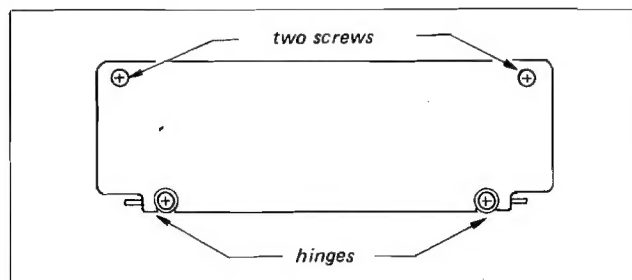


Fig. 2-2. PA-1/DR-1 boards

As the two screws fastening the board at its upper sides both circuit boards can be opened around the hinges as shown in Fig. 2-2.

2-2. Power Unit Disassembly

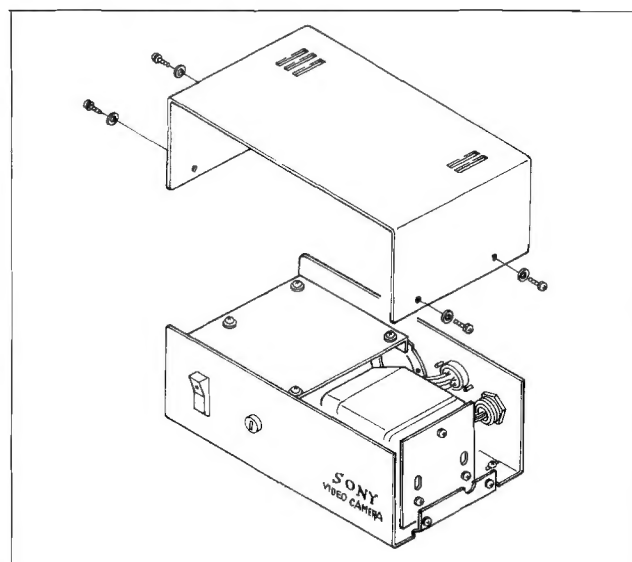


Fig. 2-3. Power unit disassembly

1. Remove the four screws and the polyethylene washers as shown in Fig. 2-3. Then the cover can be removed.
2. For checking the parts on the PW-5 Board, remove the four screws holding the board.

3. PREPARATION FOR ADJUSTMENT

3-1. Equipments Required

1. Volt-Ohm-meter (20 k Ω /V).
2. Oscilloscope
3. B/W monitor TV
4. Frequency counter
5. Tripod
6. Lens (F16 mm with iris control)
Optional standard lens (automatic iris-servo control lens type JF1614EA-II)
7. SONY test pattern: 180 mm x 240 mm (SONY Part No. 3-701-397-00)
8. Lighting equipments

3-2. Connections

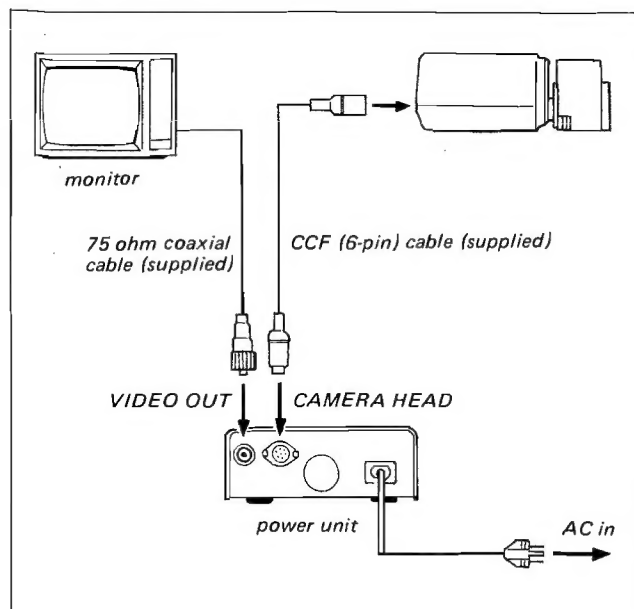


Fig. 3-1. Connections

4. PICK-UP TUBE REPLACEMENT

Replace the pickup tube according to the following procedures.

1. Remove the lens from the camera. Remove the upper, lower, and front covers, and the shield cover. (Refer to "Camera Head Unit Disassembly" in sec. 2-1.)
2. Remove the four screws holding the lens mount and remove the mount, as shown in Fig. 4-1.
3. Pull out the H Board slowly into the rear of the camera to unplug the pickup tube from the 7P socket. Push the tube out into the front of the camera, and remove the tube from the camera.
4. Check that there is not a scratch nor dust on the faceplate of a replacement tube. Also check that the pins are straight.

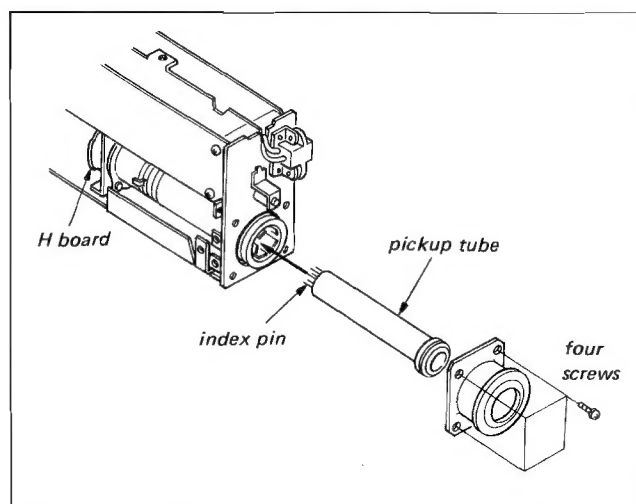


Fig. 4-1. Pickup tube replacement

5. Make a note of and write down the value of the recommended target voltage that is stamped on side glass of the tube. This value is important for the target voltage setting.
6. Insert the pickup tube into the deflection coil so that the index pins of the tube is positioned in the direction as shown in Fig. 4-1 and plug the tube into the socket securely.
7. Install the lens mount and attach the lens. Then proceed to the adjustments.

<CAUTION>

When a new pickup tube (SONY Part No. 1-525-182-00) is used for replacing the tube in the units bearing serial numbers 10,001 thru 10,060 (USA/CND), short circuit between TH2 and TH3 on the PA-1 Board. The tube type E5195A CHALNICON used in the units of serial No. 10,001 thru No. 10,060 were different from the tube type S4102 NEWVICON used in the sets of serial No. 10,061 and higher.

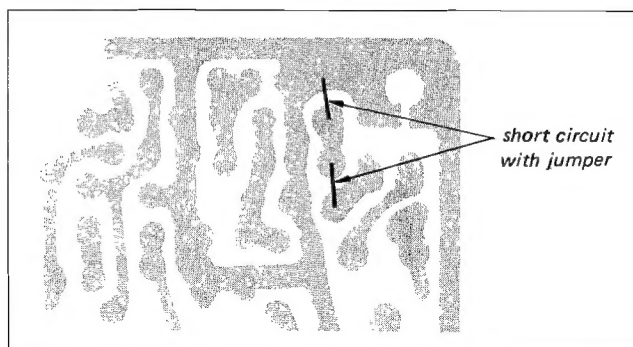


Fig. 4-2. PA-1 board

5. DEFLECTION WAVEFORM CHECK

This check is not necessary if it is confirmed that the deflection circuit of the camera functions normally.

1. Turn R2 (BEAM) on the PA-1 Board fully clockwise (○) so that the electron beam is cut off.
2. Verify that the deflection waveforms are present as shown in Fig. 5-1.

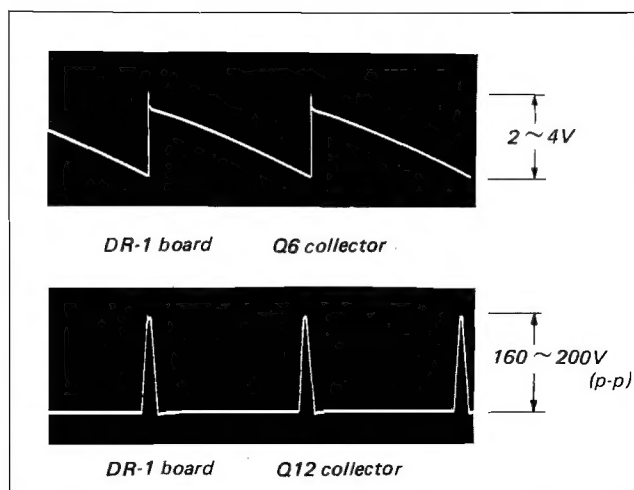


Fig. 5-1. Deflection waveforms

6. OPTICAL SYSTEM ADJUSTMENT (mechanical back focus adjustment)

1. Point the camera at a distant object of more than 15 meters apart.
2. Set the lens focal distance control to infinity. Adjust R7 (FOCUS) on the PA-1 Board for the sharpest possible picture on the monitor.
3. Insert the tip of a flat (-) head screwdriver into the slit on the lens mount as shown in Fig. 6-1. Turn the flat (-) head screw driver clockwise or counterclockwise slowly around the lens mount using the screwdriver, for the sharpest possible picture on the monitor. Repeat steps 2 and 3.

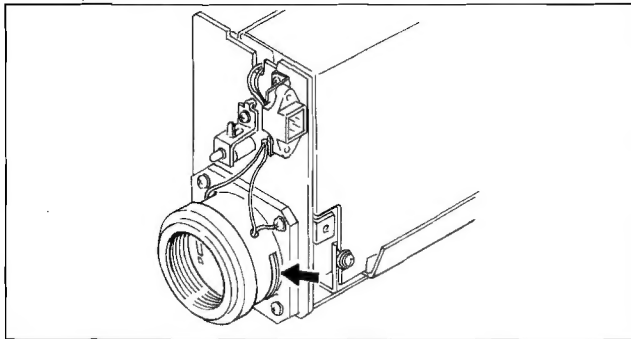


Fig. 6-1. Flange back adjustment

7. POWER SUPPLY ADJUSTMENTS

7-1. Camera Head Unit Power Supply Adj.

1. Connect a VOM across the fastening screw of the Q15 collector and GND on the DR-1 Board. Adjust R61 on the same board for a 14.5 ± 0.2 V reading.
2. Connect a VOM across the Q15 emitter and GND on the DR-1 Board. Adjust R56 for a 12.0 ± 0.2 V reading.

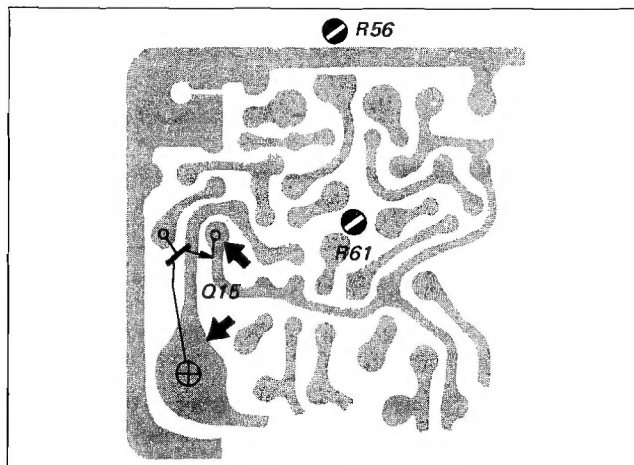


Fig. 7-1. DR-1 board

7-2. Supply Voltage Adjustment of Power Unit

1. Connect a VOM across the circuit pattern marked with (11) and GND on the PW-5 Board. Adjust R12 on the PW-5 Board for a 12.0 ± 0.2 V reading.

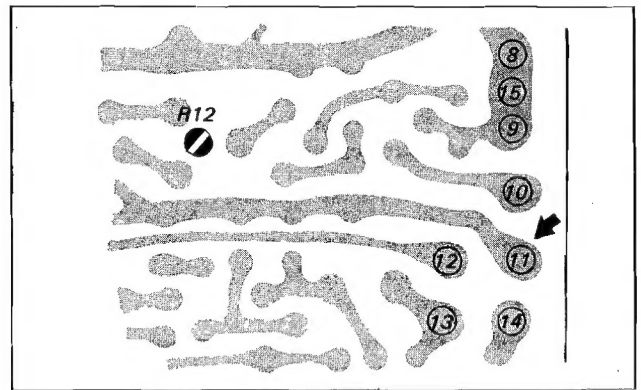


Fig. 7-2. PW-5 board

8. DEFLECTION SYSTEM ADJUSTMENTS

A monitor must have the normal horizontal and vertical scan sizes, and good linearity for making this deflection system adjustments. The monitor scan size can be adjusted by playing back the monoscope portion of the SONY alignment tape by a VTR. The monitor should preferably be set to the reduced scan mode.

8-1. Deflection Yoke Tilt Adjustment

1. If the monitor picture is tilted on the monitor screen, loosen the two diagonal screws shown in Fig. 8-1 fixing the DY and turn the DY until the picture is not tilted.
2. Tighten the screws loosened in Step 1 and verify that the picture is not tilted after tightening the screws.

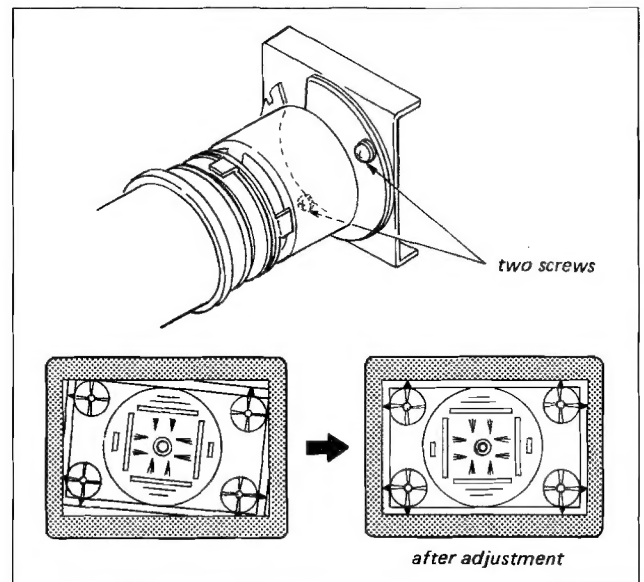


Fig. 8-1. DY tilt adjustment

8-2. Sync Generator Frequency Adjustment

1. Turn on the camera and leave it for warmup for several minutes.
2. Connect the frequency counter to the Q6 collector on the DR-1 Board. Adjust L1 on the DR-1 Board for a counter reading of 15734 ± 5 Hz.

8-3. Alignment Magnet Adjustment

1. Point the camera to any object of good contrast. Position the camera on a tripod so that the image of the object is positioned at the center of the monitor screen, and adjust the lens focus control for optimum focus.
2. Turn an alignment magnet according to the following steps so that the object image remains staying in the center of monitor screen (within 5%) even when R7 (FOCUS) on the PA-1 Board is turned 45 degrees clockwise and then 45 degrees counterclockwise.
 - (1) While holding one of the two alignment magnets with finger securely shown in Fig. 8-2, turn the other magnet slightly to find the point where the object (in the center of the monitor screen) shift is within 5% of the monitor size even though R7 (FOCUS)/PA-1 is turned 45° ↻ and is then turned 45° ↺.

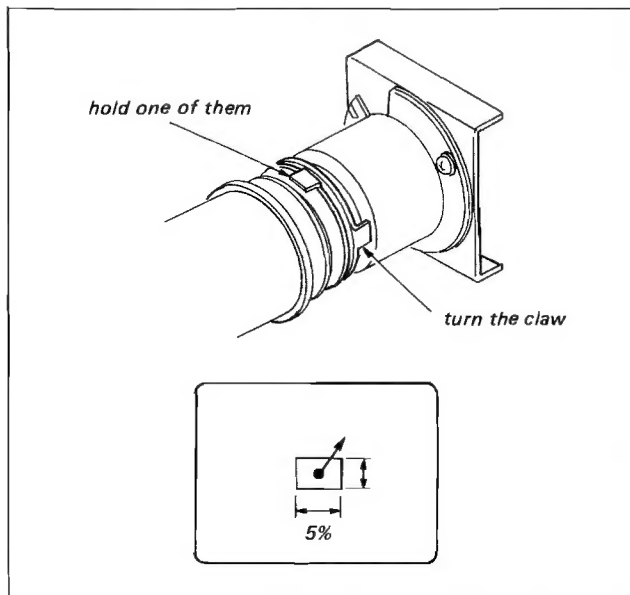


Fig. 8-2. Alignment magnet adjustment

- (2) If the alignment magnet adjustment for object shift within 5% cannot be attained even after the magnet is turned 360 degrees, turn the other magnet that has been fixed for about 45 degrees and repeat Step (1).
- (3) Repeat Steps (1) and (2) until the alignment magnet adjustment is complete.
3. Adjust R7 [FOCUS] on the PA-1 Board for the sharpest focus.

8-4. Centering Adjustment

Adjustment with use of the target ring of the pickup tube

1. Adjust L3 [H. SIZE], R15 [V. SIZE], and R12 [V. LINEARITY] on the DR-1 Board for enlarging the deflection size so that the four corners of the monitor screen shows the black shade of the target ring as shown in Fig. 8-3.
2. Adjust R44 (H-CENTERING) and R24 (V-CENTERING) on the DR-1 Board so that the black shades are displayed equally in the four corners of the picture, as shown in Fig. 8-3.

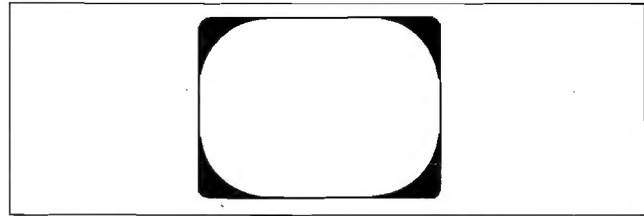


Fig. 8-3. Centering adjustment

Adjustment with the zoom lens

1. Point the camera with the zoom lens to any object, having good contrast. Adjust the camera position on a tripod so that the object is positioned in the center of the monitor screen.
2. Adjust R44 (H-CENTERING) and R24 (V-CENTERING) on the DR-1 Board so that the object image in the center of the screen remains staying at the same position even if the lens zoom control is continuously changed between the tele position and the wide position.

8-5. Horizontal Size Adjustment

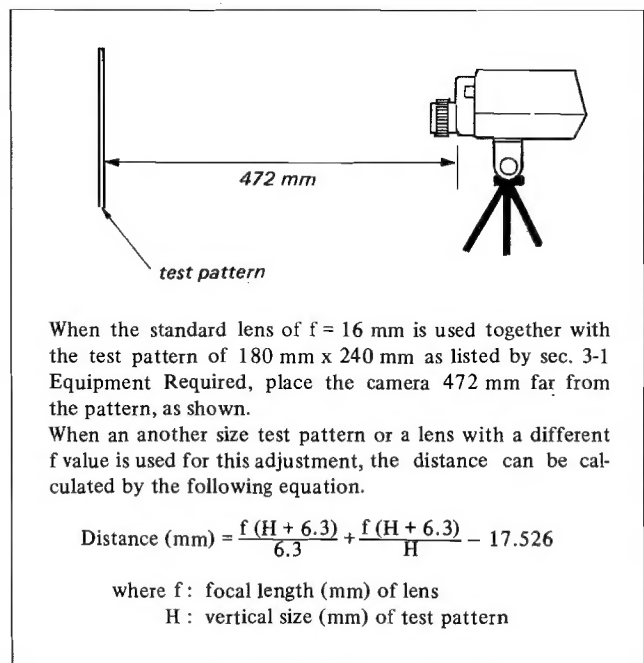


Fig. 8-4. Standard shooting state

1. Point the camera to the test pattern at the distance obtained by the equation in Fig. 8-4.
2. Adjust L3 [H. SIZE] on the DR-1 Board so that the whole horizontal width is equal to the horizontal width of the monitor screen.

8-6. Vertical Size and Linearity Adjustment

1. Adjust R12 (V-LINE) and R15 (V-SIZE) on the DR-1 Board in the same set-up as in Fig. 8-4 so that linearity of the monitor picture is best and the vertical width of the test pattern image fills the vertical width of the monitor screen.

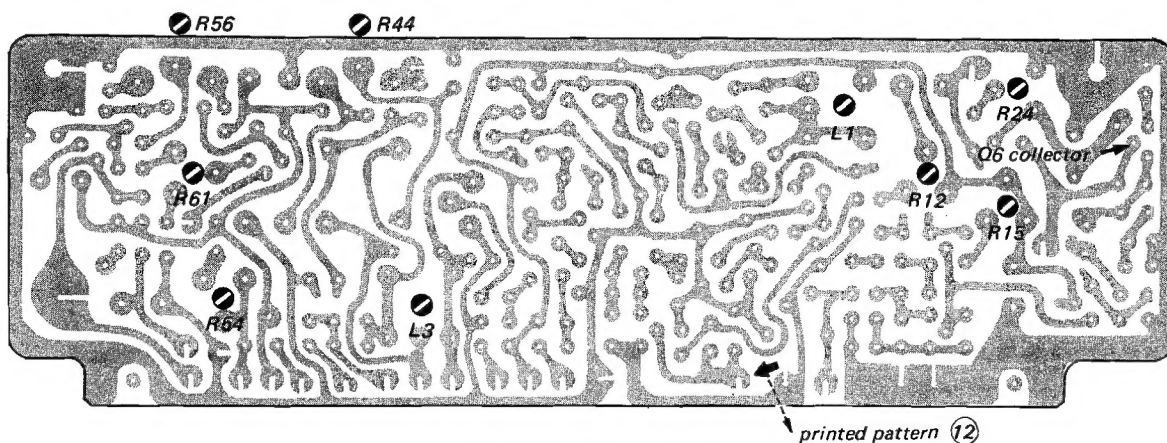


Fig. 8-5. DR-1 board

9. VIDEO SYSTEM ADJUSTMENTS

Illuminate the test pattern in the setup shown in Fig. 8-4 with 600 lux for this adjustment. (Two 100 W lamps positioned one meter from the pattern will provide adequate lighting.) Prior to this alignment, be sure to turn R42 (CABLE COMP) on the PW-5 Board and R48 (AGC) on the PA-1 Board fully counterclockwise, looking from the pattern conductor side of the boards.

9-1. Sync Level Adjustment

1. Observe the VIDEO OUT waveform of the power unit with the oscilloscope.

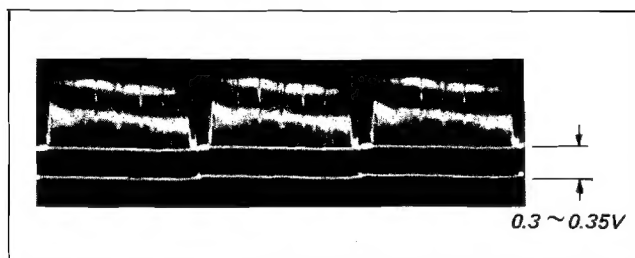


Fig. 9-1.

2. Adjust R53 on the PA-1 Board so that the sync level shown in Fig. 9-1 is $0.3 \sim 0.35$ V.

9-2. Beam Adjustment

1. Connect the probe of the oscilloscope to the Q6 emitter pattern on the PA-1 Board.
2. Open the lens iris fully. Adjust R2 (BEAM) on the PA-1 Board for a video level of 0.4 ± 0.1 V(p-p).
3. Adjust the lens iris for a normal picture on the monitor.

9-3. Target Voltage Adjustment

Since this model has employed two different types of high sensitive vidicons, the alignment procedures of the target voltage are different depending on the type of the vidicon.

CHALNICON (E5195A) Used in the units bearing serial numbers 10,001 to 10,060 (USA/CND).

NEWVICON (S4102) Used in the units bearing serial number 10,061 and higher (USA/CND).

If the pickup tube in a unit whose serial number is in the numbers from 10,001 thru 10,060 is replaced with the new pickup tube, the NEWVICON target voltage adjustment must be applied.

CHALNICON (E5195A)

1. Shoot a white object with the camera after the adjustment of Section 9-2 is completed.
2. If a black and white reversed picture is observed in the white section, turn R26 on the PA-1 Board counterclockwise \curvearrowright , looking from the printed pattern side, until the reversed picture disappears completely. Even if the reversed picture does not appear, the target voltage must be adjusted because sometimes the voltage is beyond the optimum value. Turn R26 clockwise and verify that the reversed picture appears. Then turn R26 counterclockwise and set it to the point where the reversed picture disappears.
3. Repeat the beam adjustment mentioned in Section 9-2 again.

NEWVICON S4102

1. Measure the dc voltage at printed pattern (12) on the DR-1 Board with the oscilloscope.
2. Connect the VOM to the center terminal (movable arm) lug of R26 on the PA-1 Board. Adjust R26 for the target voltage calculated by the following equation.



$$\text{Target set voltage (V)} = \text{Esj(V)} + \text{Ek(V)}$$

where Esj: Recommended value of target voltage stamped on the pickup tube side glass.

Ek: Dc voltage measured at pattern (12) on DR-1 Board.

3. Perform the adjustment described in Section 9-2 again.

9-4. Focus Adjustment

1. Adjust the focus ring of the lens for the best focus while observing the picture on the monitor.
2. Adjust R7 on the PA-1 Board for the sharpest possible picture on the monitor.
3. Repeat Steps 1 and 2.

9-5. Dark Level (Pedestal) Adjustment

The procedures for this adjustment are also different depending on the type of a pickup tube used, as the ones of the target voltage adjustment.

CHALNICON E5195A

1. Place the cap on the lens to shut-off all incoming light.
2. Connect the probe of the oscilloscope to the VIDEO OUT connector of the power unit. Adjust R54 (DARK) on the DR-1 Board for a video level of 50 mV to 80 mV.

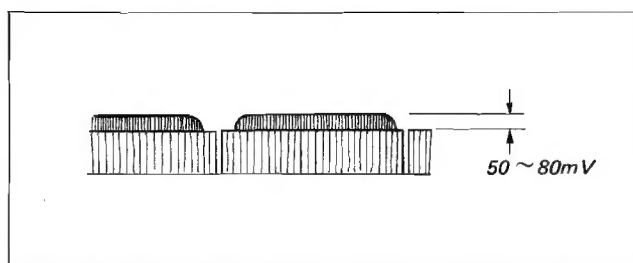


Fig. 9-2. Dark level adjustment

NEWVICON (S4102)

1. Put the cap on the lens to prevent all incoming light.
2. Connect probe of the oscilloscope to the Q6 emitter on the PA-1 Board. Adjust R54 (DARK) on the DR-1 Board for a $18 \pm 2 mV(p-p)$ reading.

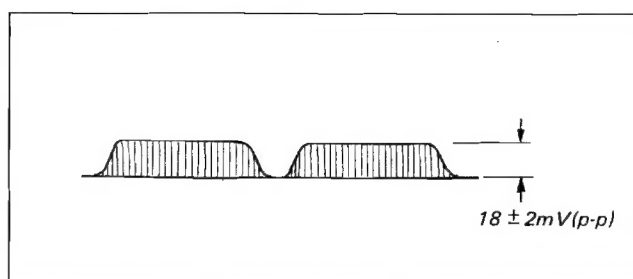


Fig. 9-3. Dark level adjustment

9-6. AGC Adjustment

1. Connect probe of the oscilloscope to the VIDEO OUT of the power unit.
2. Adjust the lens iris for a video level of $0.35 \pm 0.05 V$.
3. Turn R48 (AGC) on the PA-1 Board slowly from its fully counterclockwise position and set it to the point where the video level is beyond 0.4 V.
4. Then turn R48 counterclockwise gradually and stop turning when the video level returns to the original value.

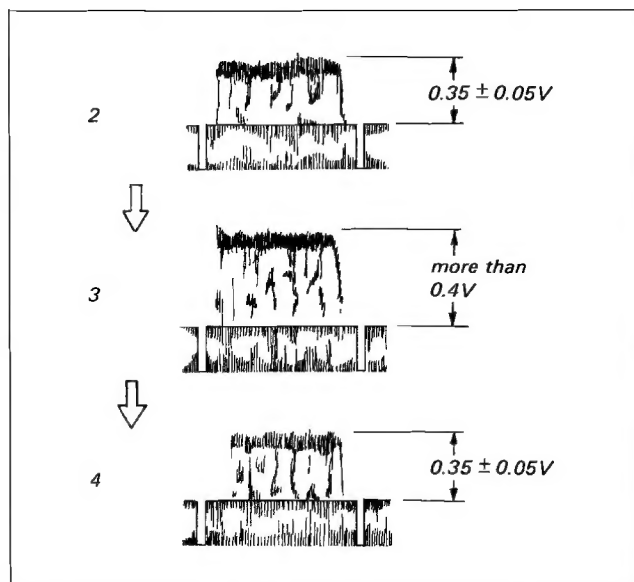


Fig. 9-4. AGC adjustment

9-7. White Clip Adjustment

1. Connect probe of the oscilloscope to the VIDEO OUT of the power unit.
2. Shoot a bright subject such as fluorescent lamp and verify that the VIDEO OUT waveform is $1.3^{+0}_{-0.1} V(p-p)$.
3. If the above specification is not obtained, change the value of R49 on the PA-1 Board.
If, for example, a 4700Ω resistor is mounted for R49,

more than 1.7 V(p-p)	Change it to 6,800 Ω
1.5 to 1.7 V(p-p)	Change it to 6,200 Ω
1.4 to 1.5 V(p-p)	Change it to 5,600 Ω
1.3 to 1.4 V(p-p)	Change it to 5,100 Ω

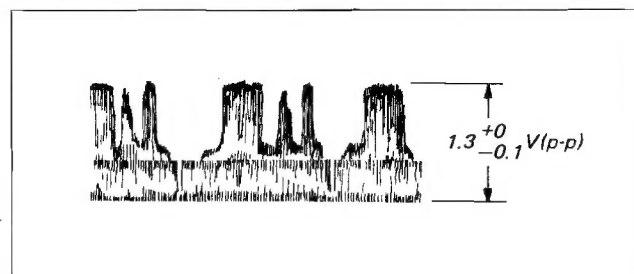


Fig. 9-5. White clip adjustment

9-8. Cable Compensation Adjustment

1. Connect the camera head and the power unit with a 5 meter CCF cable and point the camera to the test pattern.
2. Connect probe of the oscilloscope to the VIDEO OUT of the power unit.
3. Turn R42 on the PW-5 Board slowly from the fully counterclockwise position and stop turning it when the video level starts increasing.
4. Then turn R42 counterclockwise slowly and stop turning when the original video level is restored.

SECTION 2

PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

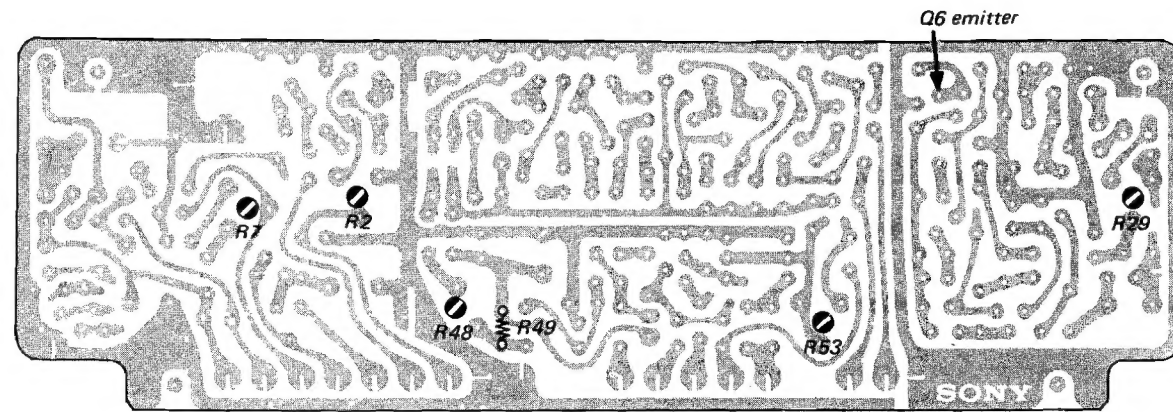


Fig. 9-6. PA-1 board

10. AUTOMATIC SERVO-CONTROLLED IRIS LENS ADJUSTMENT

1. Mount the automatic aperture lens (JF-1614EA-II) and point the camera to any object, having a good contrast.
2. Remove the cap "A" on the lens body and adjust the variable resistor in the lens shown in Fig. 10-1 for 1.0 ± 0.1 V(p-p) while observing the VIDEO OUT of the power unit.

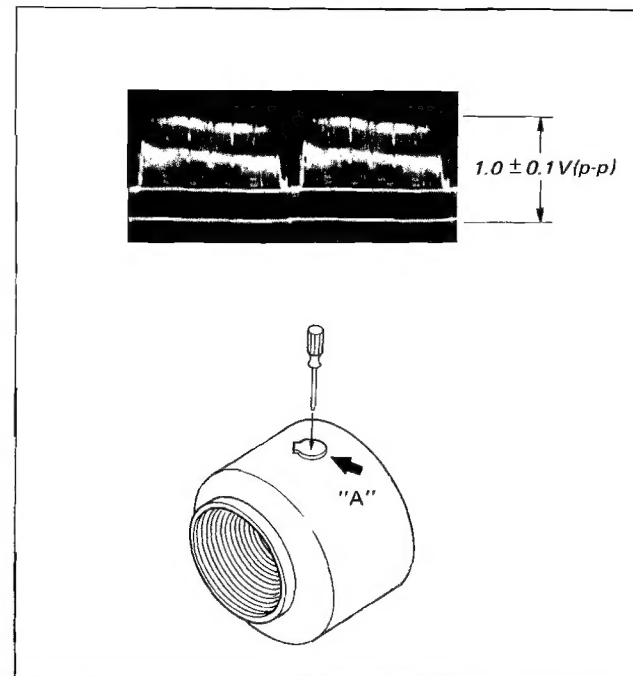
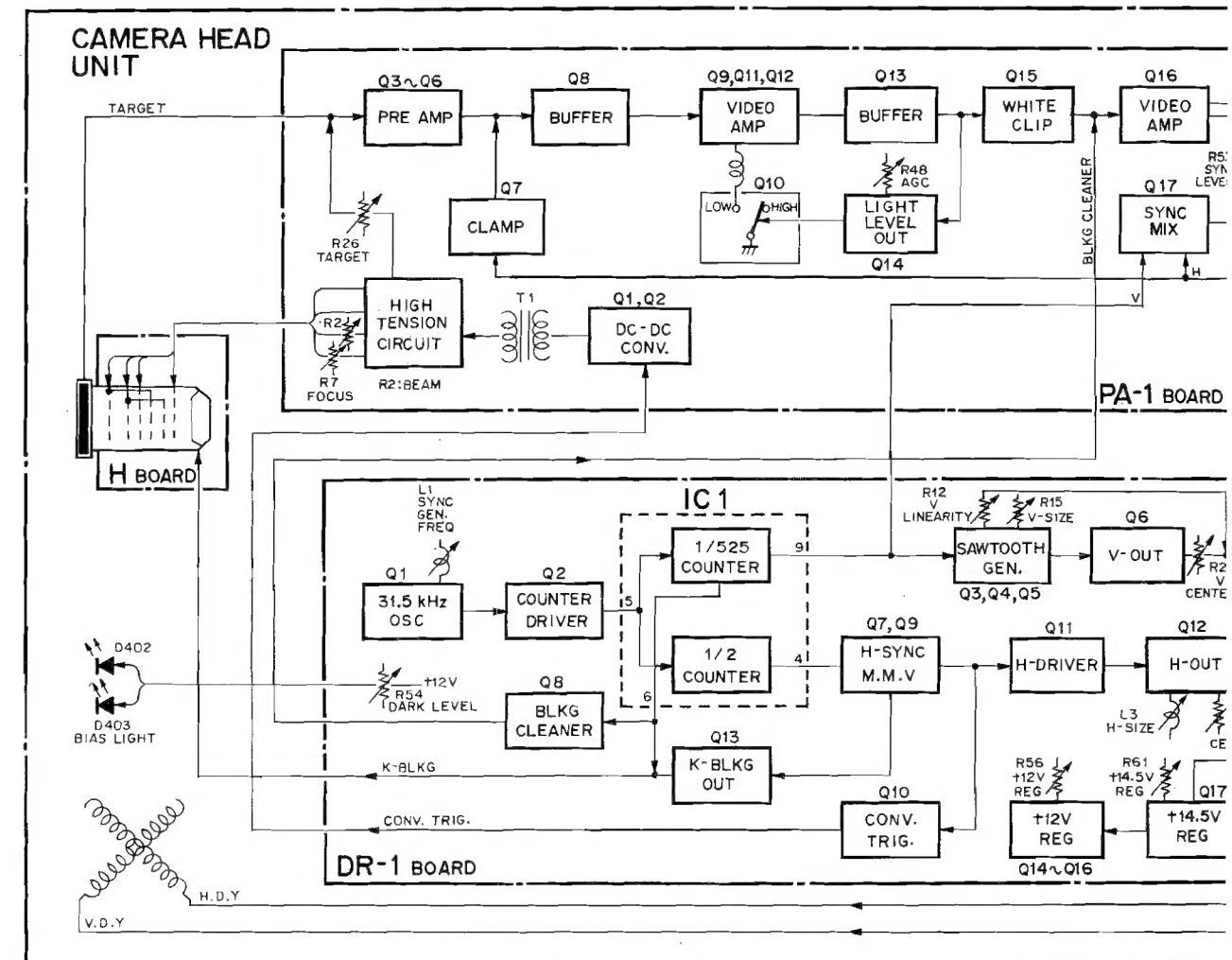


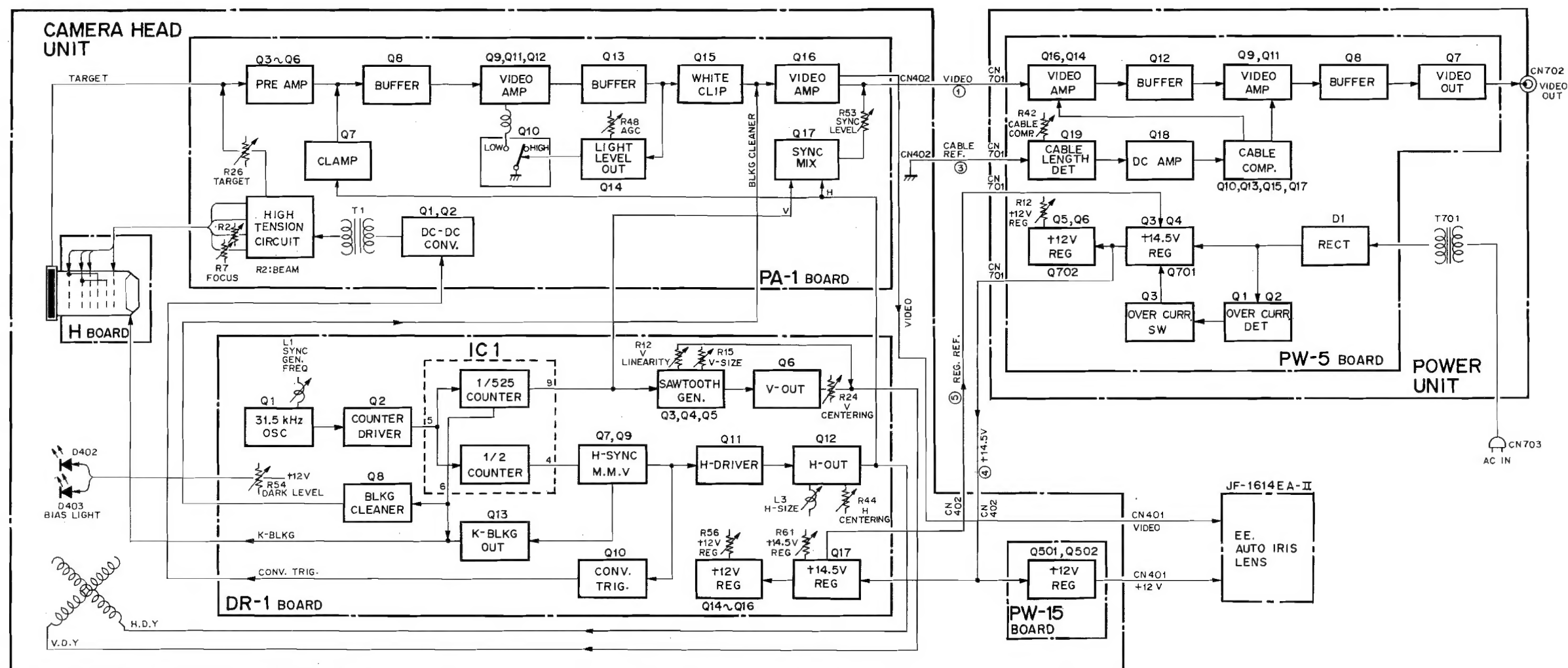
Fig. 10-1. Automatic servo controlled iris lens adjustment

BLOCK DIAGRAM



SECTION 2 PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

BLOCK DIAGRAM

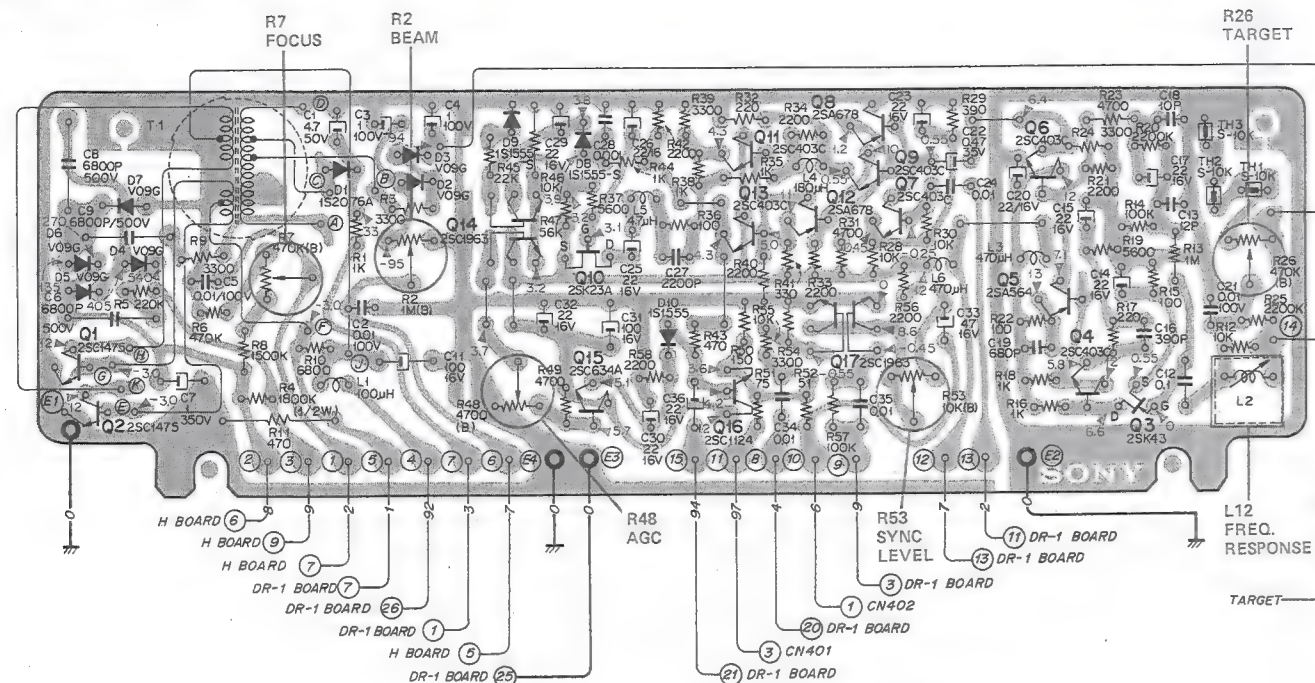


PRINTED WIRING BOARD

PA-1 BOARD

REF. No. 200 SERIES

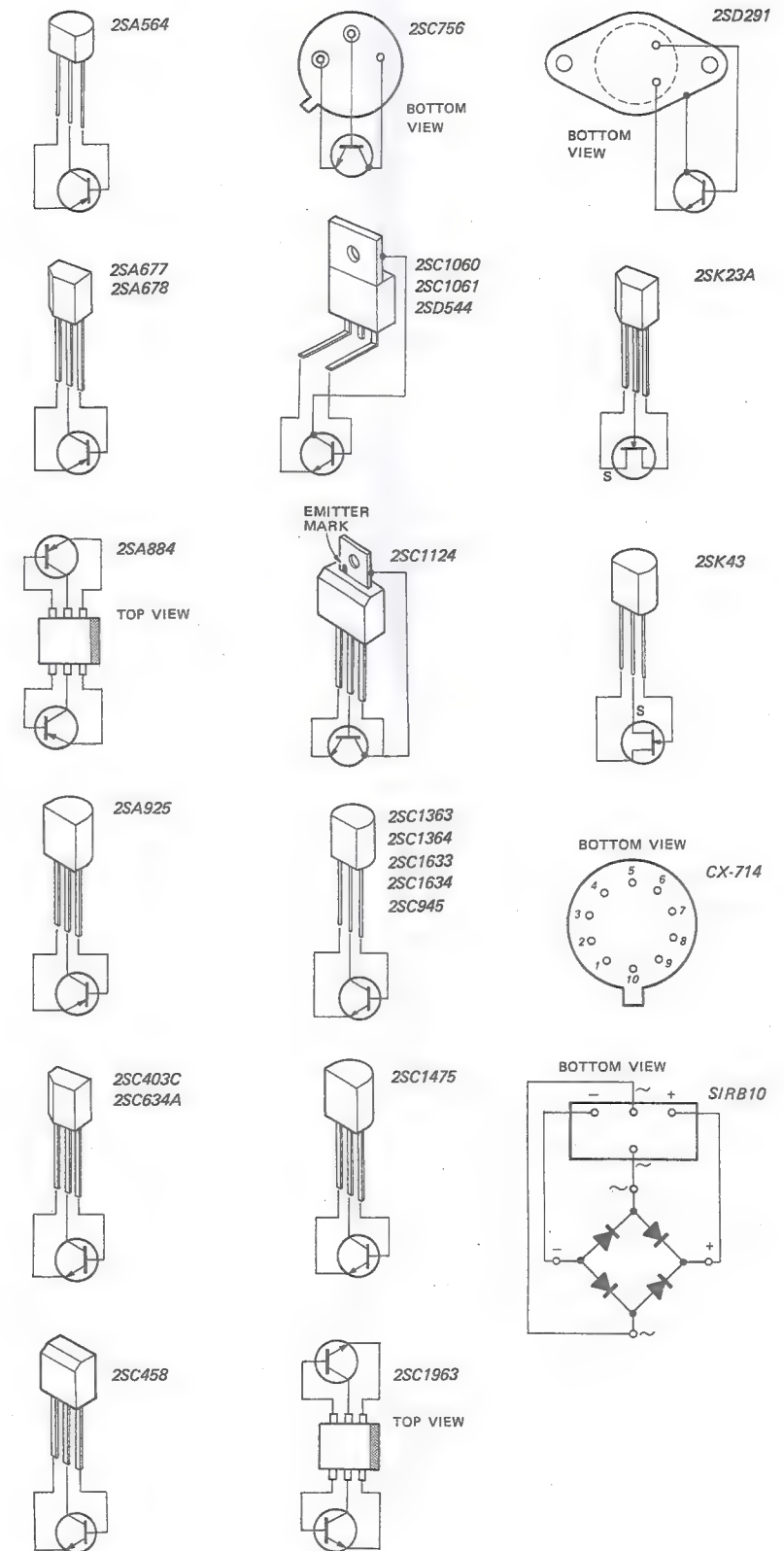
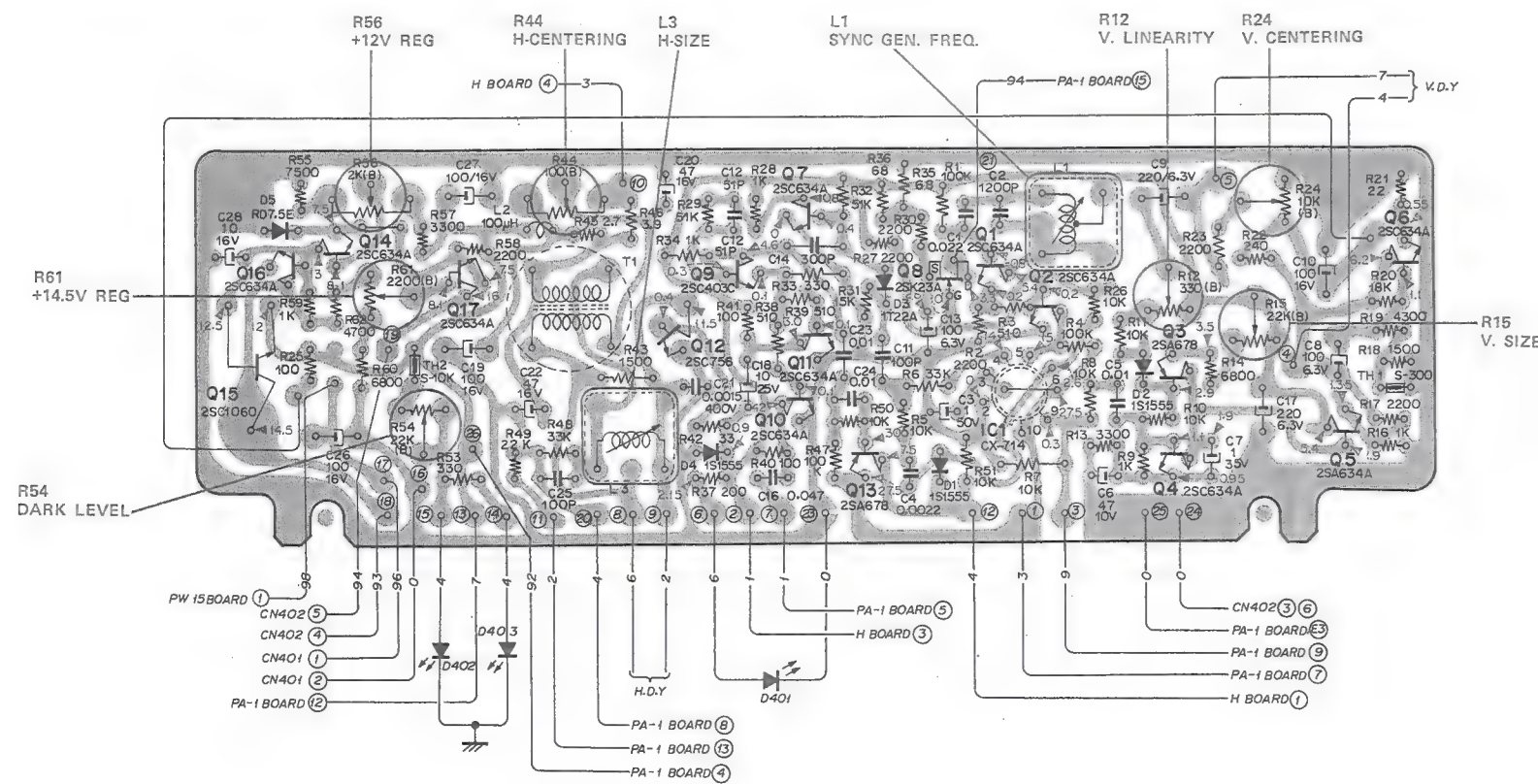
PW-5 BC



NOTE:
SERIAL NO. 10,061 AND HIGHER:
THERMISTORS TH2 AND TH3 ARE SHORTED ON THE
PA-1 BOARD.

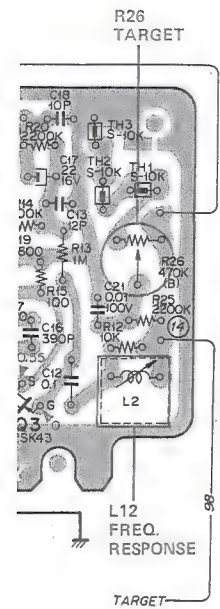
DR-1 BOARD

REF. NO. 300 SERIES

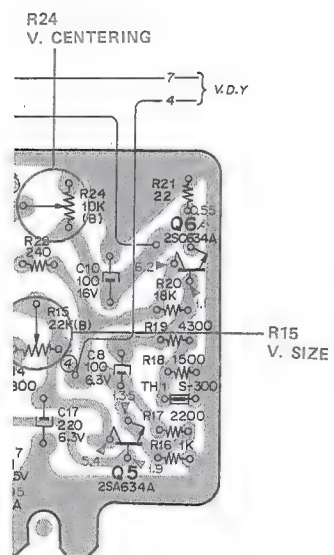


H. BOA

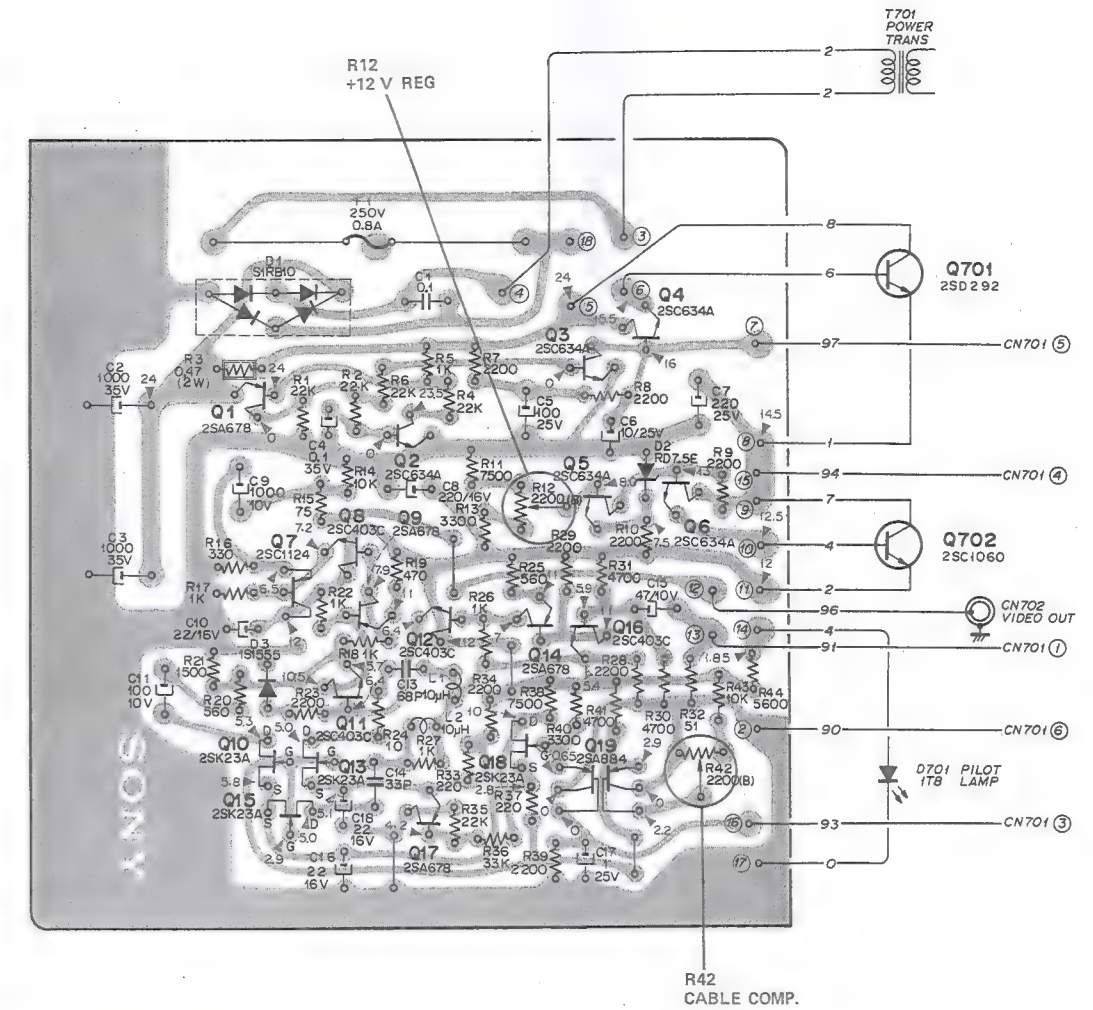
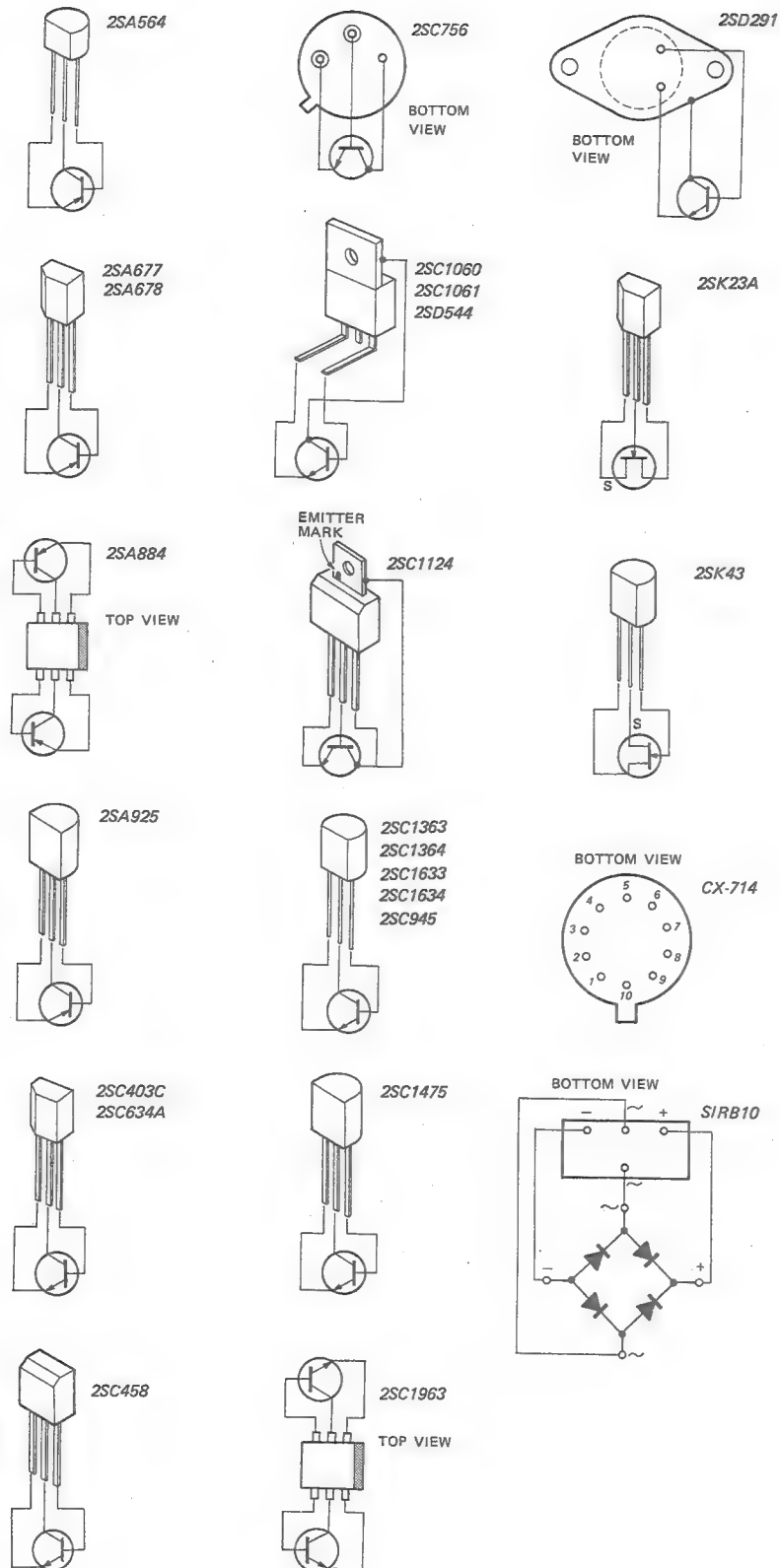
DR-1 BOARD (10) —
DR-1 BOARD (2) —
PA-1 BOARD (3) —
DR-1 BOARD (12) —



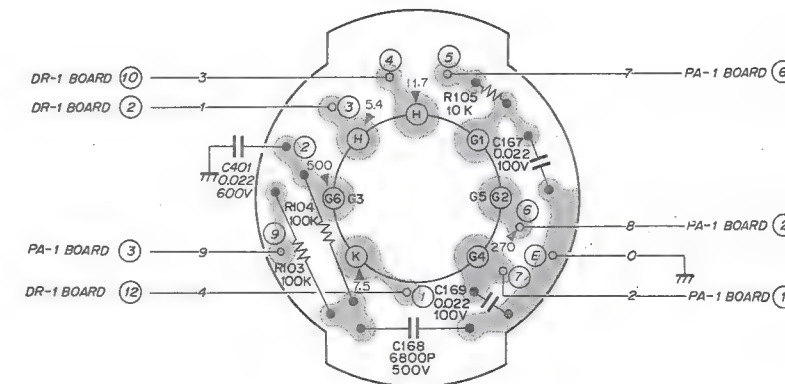
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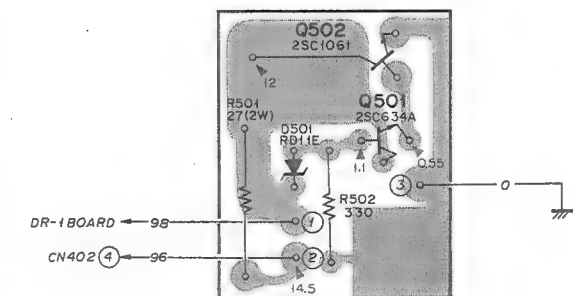
CN402 (3) (6)
PA-1 BOARD (E3)
PA-1 BOARD (9)
PA-1 BOARD (7)
1 BOARD (1)



H. BOARD



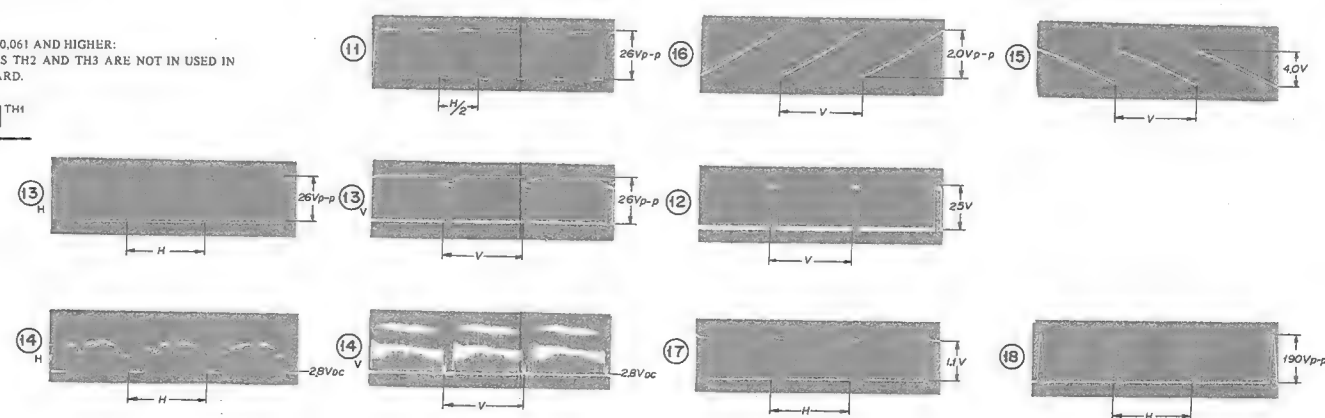
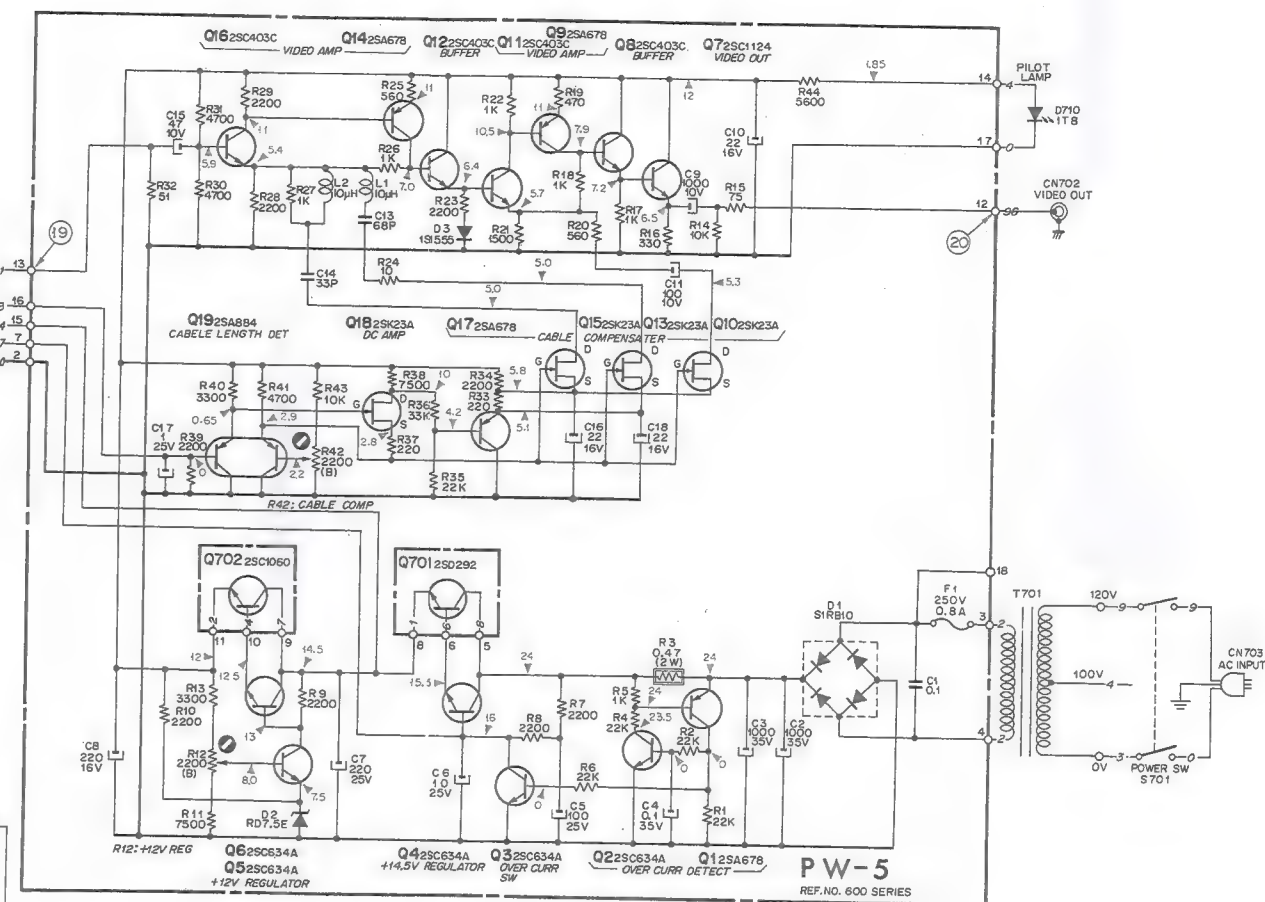
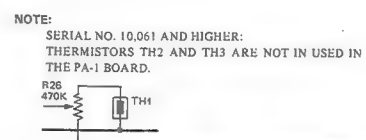
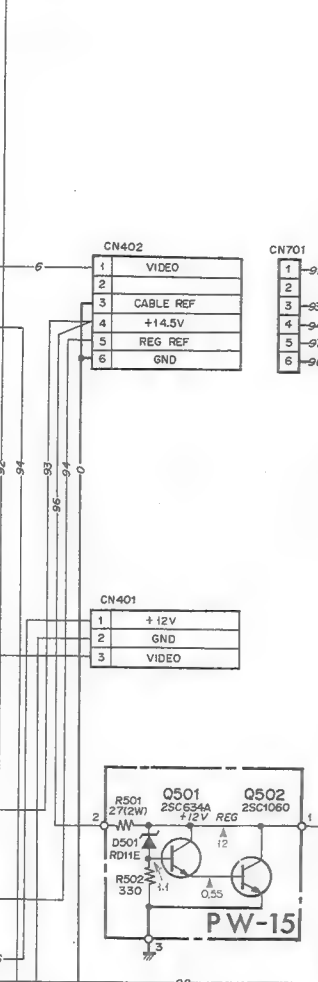
PW-15 BOARD



SCHEMATIC DIAGRAM

The schematic diagram illustrates the internal circuitry of a video camera, organized into several main functional sections:

- DC-DC Converter (PA-1):** Located at the top left, it includes a transformer (T1) and various resistors and capacitors to convert input power. It is labeled with components Q12SC1475, Q22SC1475, and Q32SC1475.
- Video Amplifier (PA-1):** The central section, labeled "PA-1 REF. NO. 200 SERIES", contains multiple video amplifier stages (Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q9, Q10, Q11, Q12, Q13, Q14, Q15, Q16, Q17, Q18, Q19, Q20, Q21, Q22, Q23, Q24, Q25, Q26, Q27, Q28, Q29, Q30, Q31, Q32, Q33, Q34, Q35, Q36, Q37, Q38, Q39, Q40, Q41, Q42, Q43, Q44, Q45, Q46, Q47, Q48, Q49, Q50, Q51, Q52, Q53, Q54, Q55, Q56, Q57, Q58, Q59, Q60, Q61, Q62, Q63, Q64, Q65, Q66, Q67, Q68, Q69, Q70, Q71, Q72, Q73, Q74, Q75, Q76, Q77, Q78, Q79, Q80, Q81, Q82, Q83, Q84, Q85, Q86, Q87, Q88, Q89, Q90, Q91, Q92, Q93, Q94, Q95, Q96, Q97, Q98, Q99, Q100, Q101, Q102, Q103, Q104, Q105, Q106, Q107, Q108, Q109, Q110, Q111, Q112, Q113, Q114, Q115, Q116, Q117, Q118, Q119, Q120, Q121, Q122, Q123, Q124, Q125, Q126, Q127, Q128, Q129, Q130, Q131, Q132, Q133, Q134, Q135, Q136, Q137, Q138, Q139, Q140, Q141, Q142, Q143, Q144, Q145, Q146, Q147, Q148, Q149, Q150, Q151, Q152, Q153, Q154, Q155, Q156, Q157, Q158, Q159, Q160, Q161, Q162, Q163, Q164, Q165, Q166, Q167, Q168, Q169, Q170, Q171, Q172, Q173, Q174, Q175, Q176, Q177, Q178, Q179, Q180, Q181, Q182, Q183, Q184, Q185, Q186, Q187, Q188, Q189, Q190, Q191, Q192, Q193, Q194, Q195, Q196, Q197, Q198, Q199, Q200, Q201, Q202, Q203, Q204, Q205, Q206, Q207, Q208, Q209, Q210, Q211, Q212, Q213, Q214, Q215, Q216, Q217, Q218, Q219, Q220, Q221, Q222, Q223, Q224, Q225, Q226, Q227, Q228, Q229, Q230, Q231, Q232, Q233, Q234, Q235, Q236, Q237, Q238, Q239, Q240, Q241, Q242, Q243, Q244, Q245, Q246, Q247, Q248, Q249, Q250, Q251, Q252, Q253, Q254, Q255, Q256, Q257, Q258, Q259, Q260, Q261, Q262, Q263, Q264, Q265, Q266, Q267, Q268, Q269, Q270, Q271, Q272, Q273, Q274, Q275, Q276, Q277, Q278, Q279, Q280, Q281, Q282, Q283, Q284, Q285, Q286, Q287, Q288, Q289, Q290, Q291, Q292, Q293, Q294, Q295, Q296, Q297, Q298, Q299, Q300, Q301, Q302, Q303, Q304, Q305, Q306, Q307, Q308, Q309, Q310, Q311, Q312, Q313, Q314, Q315, Q316, Q317, Q318, Q319, Q320, Q321, Q322, Q323, Q324, Q325, Q326, Q327, Q328, Q329, Q330, Q331, Q332, Q333, Q334, Q335, Q336, Q337, Q338, Q339, Q340, Q341, Q342, Q343, Q344, Q345, Q346, Q347, Q348, Q349, Q350, Q351, Q352, Q353, Q354, Q355, Q356, Q357, Q358, Q359, Q360, Q361, Q362, Q363, Q364, Q365, Q366, Q367, Q368, Q369, Q370, Q371, Q372, Q373, Q374, Q375, Q376, Q377, Q378, Q379, Q380, Q381, Q382, Q383, Q384, Q385, Q386, Q387, Q388, Q389, Q390, Q391, Q392, Q393, Q394, Q395, Q396, Q397, Q398, Q399, Q400, Q401, Q402, Q403, Q404, Q405, Q406, Q407, Q408, Q409, Q410, Q411, Q412, Q413, Q414, Q415, Q416, Q417, Q418, Q419, Q420, Q421, Q422, Q423, Q424, Q425, Q426, Q427, Q428, Q429, Q430, Q431, Q432, Q433, Q434, Q435, Q436, Q437, Q438, Q439, Q440, Q441, Q442, Q443, Q444, Q445, Q446, Q447, Q448, Q449, Q450, Q451, Q452, Q453, Q454, Q455, Q456, Q457, Q458, Q459, Q460, Q461, Q462, Q463, Q464, Q465, Q466, Q467, Q468, Q469, Q470, Q471, Q472, Q473, Q474, Q475, Q476, Q477, Q478, Q479, Q480, Q481, Q482, Q483, Q484, Q485, Q486, Q487, Q488, Q489, Q490, Q491, Q492, Q493, Q494, Q495, Q496, Q497, Q498, Q499, Q500, Q501, Q502, Q503, Q504, Q505, Q506, Q507, Q508, Q509, Q510, Q511, Q512, Q513, Q514, Q515, Q516, Q517, Q518, Q519, Q520, Q521, Q522, Q523, Q524, Q525, Q526, Q527, Q528, Q529, Q530, Q531, Q532, Q533, Q534, Q535, Q536, Q537, Q538, Q539, Q540, Q541, Q542, Q543, Q544, Q545, Q546, Q547, Q548, Q549, Q550, Q551, Q552, Q553, Q554, Q555, Q556, Q557, Q558, Q559, Q560, Q561, Q562, Q563, Q564, Q565, Q566, Q567, Q568, Q569, Q570, Q571, Q572, Q573, Q574, Q575, Q576, Q577, Q578, Q579, Q580, Q581, Q582, Q583, Q584, Q585, Q586, Q587, Q588, Q589, Q590, Q591, Q592, Q593, Q594, Q595, Q596, Q597, Q598, Q599, Q600, Q601, Q602, Q603, Q604, Q605, Q606, Q607, Q608, Q609, Q610, Q611, Q612, Q613, Q614, Q615, Q616, Q617, Q618, Q619, Q620, Q621, Q622, Q623, Q624, Q625, Q626, Q627, Q628, Q629, Q630, Q631, Q632, Q633, Q634, Q635, Q636, Q637, Q638, Q639, Q640, Q641, Q642, Q643, Q644, Q645, Q646, Q647, Q648, Q649, Q650, Q651, Q652, Q653, Q654, Q655, Q656, Q657, Q658, Q659, Q660, Q661, Q662, Q663, Q664, Q665, Q666, Q667, Q668, Q669, Q670, Q671, Q672, Q673, Q674, Q675, Q676, Q677, Q678, Q679, Q680, Q681, Q682, Q683, Q684, Q685, Q686, Q687, Q688, Q689, Q690, Q691, Q692, Q693, Q694, Q695, Q696, Q697, Q698, Q699, Q700, Q701, Q702, Q703, Q704, Q705, Q706, Q707, Q708, Q709, Q710, Q711, Q712, Q713, Q714, Q715, Q716, Q717, Q718, Q719, Q720, Q721, Q722, Q723, Q724, Q725, Q726, Q727, Q728, Q729, Q730, Q731, Q732, Q733, Q734, Q735, Q736, Q737, Q738, Q739, Q740, Q741, Q742, Q743, Q744, Q745, Q746, Q747, Q748, Q749, Q750, Q751, Q752, Q753, Q754, Q755, Q756, Q757, Q758, Q759, Q760, Q761, Q762, Q763, Q764, Q765, Q766, Q767, Q768, Q769, Q770, Q771, Q772, Q773, Q774, Q775, Q776, Q777, Q778, Q779, Q780, Q781, Q782, Q783, Q784, Q785, Q786, Q787, Q788, Q789, Q790, Q791, Q792, Q793, Q794, Q795, Q796, Q797, Q798, Q799, Q800, Q801



CAMERA HEAD UNIT



PACKING



ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
		ELECTRICAL PARTS
		Mounted Board
	8-984-063-55	H board
	8-984-066-00	PA-1 board
	8-984-066-10	DR-1 board
	8-984-066-20	PW-5 board
		Printed Circuit Board
	1-585-112-00	PW-15 board
		Capacitors
		Standard electrolytic capacitors (less than 1000µF), mylar capacitors (less than 200WV) and ceramic capacitors (less than 50WV) are not listed. All capacitors are in micro farads unless otherwise indicated.
		H board
C168	1-102-267-11	ceramic 0.0068
		PA-1 board
C206	1-102-267-11	ceramic 0.0068
C208, 209	1-102-267-11	ceramic 0.0068
C213	1-107-063-11	mica 12 pF
C214, 215	1-131-201-11	tantal 22
C217	1-131-201-11	tantal 22
C218	1-107-061-11	mica 10 pF
C220	1-131-201-11	tantal 22
C222	1-131-213-11	tantal 0.47
C223	1-131-201-11	tantal 22
C225	1-131-201-11	tantal 22
C226	1-131-201-11	tantal 22
C229, 230	1-131-201-11	tantal 22
C232	1-131-201-11	tantal 22
C236	1-131-201-11	tantal 22
		D201 16 V
		D202~207 16 V
		D208, 209 16 V
		D210 16 V
		16 V
		Diodes & IC
		As to the type number and parts code number of all the semiconductors, those of replacement use is shown here. Sometimes different types of semiconductor may be found in actual machine. Replacement use semiconductor and factory-installed semiconductor have complete interchangeability.
		PA-1 board
		DR-1 board
		Chassis
		Plastic
		PW-5 board
		Tantal
		Mica
		Mylar
		0.012
		1
		100 pF
		51 pF
		300 pF
		0.0015
		100 pF
		0.022
		600 V
		35 V
		16 V
		16 V
		25 V
		16 V
		1S2076A
		V0-9C
		1S1555-S
		1S1555

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
D301,302	DR-1 board	1S1555	1601,602	PW-5 board	1-407-157-XX micro 10 μ H
D303		1T22A			
D304		1S1555			
D305		RD7.5E			
IC301	8-757-140-00	CX-714			
	Chassis				
D401		1T8			
D402,403		TLR-109			
	PW-15 board				
D501		EQB01-11Z			
	PW-5 board				
D601		1SRB10	Q201,202		2SC1475
D602		RD-7.5E	Q203		2SK43-4
D603		1S1555	Q204		2SC403C
	Chassis		Q205		2SA564(A)
D701	8-710-800-00	1T8	Q206,207		2SC403C
			Q208		2SA678
			Q209		2SC403C
			Q210	8-722-354-05	2SK23A-540
			Q211		2SC403C
			Q212		2SA678
			Q213		2SC403C
			Q214		2SC1963
			Q215		2SC634A
			Q216	8-725-412-09	2SC1124-12
			Q217		2SC1963
	PA-1 board				
L201	1-407-169-XX	micro 100 μ H			
L202	1-407-787-00	micro (variable) 55 μ H			
L203	1-407-177-XX	micro 470 μ H			
L204	1-407-172-XX	micro 180 μ H	Q301,302		2SC634A
L205	1-407-186-XX	micro 4.7 μ H	Q303	8-727-788-00	2SA678-8
L206	1-407-177-XX	micro 470 μ H	Q304,307		2SC634A
	DR-1 board		Q308	8-722-354-05	2SK23A-540
L301	1-405-579-00	coil osc	Q309		2SC403C
L302	1-407-169-XX	micro 100 μ H	Q310,311		2SC634A
			Q312		2SC756-872

As to the number and parts code number of all the semiconductors, those of replacement use is shown here. Sometimes different types of semiconductor may be found in actual machine. Replacement use semiconductor and factory-installed semiconductor have complete interchangeability.

PA-1 board

Inductors

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
Q313	8-727-788-00	2SA678-8	R312	DR-1 boare	adjustable 330 (B)
Q314		2SC634A	R315	1-221-986-00	adjustable 22 K (B)
Q315		2SC1061	R324	1-224-253-XX	adjustable 10 K (B)
Q316, 317		2SC634A	R344	1-224-252-XX	adjustable 100 (B)
	PW-15 board		R354	1-222-730-00	adjustable 4.7 K (B)
Q501		2SC634A	R356	1-224-254-XX	adjustable 2 K (B)
Q502		2SC1061	R361	1-224-643-XX	adjustable 4.7 K (B)
	PW-5 board			1-224-251-XX	
Q601		2SA678	R501	PW-15 board	wirewound 27
Q602-606		2SC634A		1-207-911-11	
Q607		2SC1124		PW-5 board	
Q608		2SC403C	R603	1-207-616-11	wirewound 0.47
Q609		2SA678	R612	1-224-250-XX	adjustable 2.2 K (B)
Q610	8-722-354-05	2SK23A-540	R642	1-224-250-XX	adjustable 2.2 K (B)
Q611, 612		2SA403C			
Q613	8-722-354-05	2SK23A-540			
Q614		2SA678			
Q615	8-722-354-05	2SK23A540			
Q616		2SC403C			
Q617		2SA678			
Q618	8-722-354-05	2SK23A540			
Q619		2SA884			
	Chassis				
Q701		2SD291	CN401	1-509-873-00	3 P Socket
Q702		2SC1061	CN402	1-508-055-00	6 P Socket
			CN701	1-509-422-XX	6 P Socket
			CN702	1-509-618-11	Connector
			F601	1-532-401-XX	Fuse 0.8A
			T201	1-442-017-00	Transformer, converter
			T301	1-407-721-00	Transformer, HO
			T701	1-442-559-XX	Transformer, power supply
			TH201-203	1-800-202-XX	Thermistor, S-10K
			TH301	1-800-071-XX	Thermistor, S-300
			TH302	1-800-202-XX	Thermistor, S-10K
			S701	1-516-259-XX	Switch, seesaw
				1-451-098-00	Coil, vidicon
				1-525-182-00	Vidicon
	Carbon resistors in 1/2 W, 1/4 W and ±5% are omitted. All resistors are in ohms.			1-526-521-XX	Socket, vidicon
				1-534-354-XX	Camera Cable
				1-534-517-00	Cord, power
				1-534-703-31	Coaxial Cable
	PA-1 board				
R202	1-222-846-00	adjustable			
R206	1-213-208-11	metal			
R207	1-224-134-XX	adjustable			
R208	1-213-209-11	metal			
R226	1-224-134-XX	adjustable			
R248	1-224-251-XX	adjustable			
R253	1-224-252-XX	adjustable			

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